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15. (NEW) The component development management system of claim 12, wherein the XML data comprises destination information of the hardware and firmware development data.

16. (NEW) The component development management system of claim 12, wherein the XML data comprises new and revised design notice information of the hardware and firmware development data.

17. (NEW) The component development management system of claim 11, wherein the meta information is stored and managed according to Extensible Markup Language (XML).

REMARKS

STATUS OF THE CLAIMS

Claims 1-10 are pending.

Claim 9 is objected to as being dependent upon a rejected base claim, but allowable of rewritten in independent form.

Claims 1, 2, 7, 8 and 10 are rejected under 35 USC 103(a) as being unpatentable over Sakayori (US Patent No. 6,336,078) further in view of Hogan (US Patent No. 5,778,368) and further in view of Lyons ("The New Face of Artificial Intelligence").

Claims 3, 4, 6 are rejected under 35 USC 103(a) as being unpatentable over Sakayori, further in view of Hogan, further in view of Lyons, and further in view of Kavanagh (US Patent No. 5,838,965).

Claim 5 is rejected under 35 USC 103(a) as being unpatentable over Sakayori, further in view of Hogan, further in view of Lyons, and further in view of Lee (US Patent No. 4,610,000).

Claims 1-7 and 10 are amended.

New claims 11-17 are added.

Thus, claims 1-17 remain pending for reconsideration, which is respectfully requested.

The foregoing rejections are traversed. No new matter has been added in this Amendment.

CLAIMED INVENTION

The claimed present invention relates to generating meta-information to integrate management of varying layers and/or segments of product component development data. In particular, the meta-information of the present invention treats varying component development segments at the same management layer (independent claims 1 and 2) and treats each component development segment as a hierarchal structure (dependent claim 3). For example, in case of a computer product, the present invention integrates management of hardware and firmware development data as the varying segments of the computer product development data. See, page 12; and page 17, lines 20-25 of the Application. Accordingly, the present invention provides unified product component development knowledge or information.

Independent claims 1, 2, and 10 are amended to further emphasize the patentably distinguishing feature of the present invention. Using the recitation of claim 1 as an example, the present invention is directed to:

1. (TWICE AMENDED) A component development management system comprising:
 - a storage unit storing hardware and firmware development ... data generated to constitute a product, as a component development knowledge data base, wherein said hardware and said firmware development data constituting said product are at a same management level;
 - ...
 - at least one client ... which takes out a predetermined component development data from said storage unit via said network.

Therefore, in contrast to the relied upon references, the present invention provides “hardware and firmware development, including manufacture and inspection, data to constitute a product, as a component development knowledge data base, wherein said hardware and said firmware development data constituting said product are at a same management level” as well as allowing “at least one client ... which takes out a predetermined component development data from said storage unit via said network” (claim 1, emphasis added).

BENEFITS OF THE CLAIMED INVENTION

In the case of a computer product, one benefit of treating the hardware and firmware component development data at the same management level is to improve management efficiency in versioning, error tracking and/or correction, etc., because development processes of

hardware and firmware are interdependent to constitute the computer product, even though such components typically belong to/are treated by systems as different development segments. See, pages 82-87 of the Application.

PRIOR ART

Sakayori

Sakayori discloses a quality management system for component supply. Sakayori, column 1, lines 6-9. According to the Sakayori system, even when a part having a different quality to that of an originally ordered item is used to manufacture the product in a factory, quality information of the actual part used in the product delivered to the shop can be known.

Sakayori does not relate to the claimed present invention, because Sakayori does not disclose or suggest the claimed present invention “a storage unit storing hardware and firmware development ... data generated to constitute a product, as a component development knowledge data base, ... said hardware and firmware development data ... at a same management level.” See, FIG. 2 (components database DB1) and page 19, lines 7-9 of the Application.

The Examiner appears to assert that Sakayori's database 132 is similar to the present invention's components database DB1 (FIG. 2 of the Application) (page 2, item 3 of the Action). However, Sakayori's database 132 stores information on components of a product for quality management. First, in contrast to Sakayori, the present invention's DB1 stores “component development data” generated to constitute a product. In particular, in the claimed present invention, component development data is generated during product development processes, such as from the development/design of a product to the manufacture thereof, and can be electronically stored. Second, in contrast to Sakayori, the claimed present invention provides that hardware and firmware development data is stored “at a same management level” (claim 1). In other words, although typically hardware and firmware development data belong to/are treated as different development segments, the present invention treats these component development data, such as a PROM, a firmware, a condenser, an IC, and the like, at the same management level. See, FIG. 2 (components database DB1) and page 19, lines 7-11 of the Application.

Hogan

The Examiner relies on Hogan for disclosing management of components related to firmware. However, Hogan does not relate to the present invention, because Hogan relates to a

software repository system to allow re-use of real-time embedded software (column 4, lines 7-9). In contrast to Hogan, the present invention provides “hardware and firmware development, including manufacture and inspection, data to constitute a product, as a component development knowledge data base, wherein said hardware and said firmware development data constituting said product are at a same management level” (claim 1, emphasis added).

Lyons

The Examiner relies on Lyons for disclosing management of components related to hardware. However, Lyons does not relate to the present invention, because Lyons relates to a system allowing a dealer to search computer hardware components from manufacturers, forward an order to an appropriate distributor, who then forwards the order to the appropriate manufacturer. In contrast to Lyons, the present invention provides “hardware and firmware development, including manufacture and inspection, data to constitute a product, as a component development knowledge data base, wherein said hardware and said firmware development data constituting said product are at a same management level” (claim 1, emphasis added).

Kavanagh

The Examiner relies on Kavanagh for rejecting dependent claims 3, 4, and 6. These dependent claims introduce the limitation of “meta-information” that hierarchically describes component development data. Kavanagh appears to disclose meta-information describing parts and components in a manufacturing operation (column 4, line 49 to column 5, line 29). However, Kavanagh’s meta-information targets improving search and retrieval of parts and components data. In contrast to Kavanagh, the claimed present invention provides “component development data constitute a hierarchical structure and ... meta-information expressing the hierarchical structure” (claim 3). Amended claim 3 recites:

... wherein said plurality of component development data constitute a hierarchical structure and said storage unit stores meta-information expressing the hierarchical structure and said client takes out a desired component development data ... based on the meta information.

See, FIG. 2 of the Application, providing a hierarchical structure of component development data for developing a server computer as an example of a product being developed (page 18, line 7 to page 22 of the Application).

Managing component development data based upon meta-information has more advantages than just improving search and retrieval of the component development data. For

example, the meta-information of the present invention by treating varying component development segments at the same management layer (independent claims 1 and 2) and as a hierarchal structure (dependent claim 3) improves versioning, reduces errors, allows robust security control (i.e., at each layer at the component development data), and etc. in component development management. See, pages 85, line 19 to page 87; page 17, line 20 to page 40, line 17; and FIGS. 2-15 of the Application.

NEW CLAIMS 11-17

NEW CLAIMS 11 and 17

Proposed new claim 11 provides an alternative recitation of the present invention as follows.

11. (NEW) A component development knowledge system, comprising:
a programmed computer processor generating, storing and managing meta information treating at same management level varyingly managed component development data generated to constitute a product.

In contrast to the relied upon references, the present invention as recited in new claim 11 provides: "generating, storing and managing meta information treating at same management level varyingly managed component development data generated to constitute a product." Support for new claim 11 can be found, for example, on pages 19-22 of the Application.

Further, in contrast to the relied upon references, the new dependent claim 17 recites: "the meta information is stored and managed according to Extensible Markup Language (XML)." Support for new claim 17 can be found, for example, on pages 21-22 and FIGS. 3-4 of the Application.

NEW DEPENDENT CLAIMS 12-16

Further, dependent claims 12-16 depending (directly or indirectly) from claim 1, recite patentably distinguishing features as follows:

In contrast to the relied upon references, according to the present invention as recited in claim 12, the "component development knowledge data base" is written in "Extensible Markup Language (XML)." Support for new claim 12 can be found for example on page 21-22 and FIGS. 3-4 of the Application.

In contrast to the relied upon references, according to the present invention as recited in claim 13, in order to manage the hardware and firmware development data at the same

management level, "a numbering system common to both the hardware and the firmware development data," such as a drawing number, is "added to each hardware and firmware development data" (i.e., to each component development data). The numbering system represents the top-down or the hierarchical structure of the component development data of a product as shown in FIG. 2 of the Application. Support for new claim 13 can be found, for example, in FIGS. 2, 3; and pages 18-21.

In contrast to the relied upon references, according to the present invention as recited in claim 14, "patch information," which, for example, may be necessary for each firmware development data, is included as a subclass in the numbering system of the invention (for example, "patch information" may be included as a subclass in the drawing number of the firmware development data as shown in FIG. 3 of the Application). As a benefit, not only hardware and firmware development data, but also information related to the hardware and firmware development data can be readily obtained together. For example, in contrast to the relied upon references, according to the present invention as recited in claims 15 and 16, such related information of component development data can be "destination information" and "new and revised design notice" information, respectively. Support for claims 15 and 16 can be found, for example, in FIGS. 12, 17; page 43, lines 18-24; and pages 30-37 of the Application.

CONCLUSION


Dependent claims 3-9 (depending, either directly or indirectly, from claim 2) recite patentably distinguishing features of their own, and, further, are at least patentably distinguishing due to their dependencies from independent claim 2. In view of the amendments and remarks presented above, it is respectfully submitted that the application is in condition for allowance, and withdrawal of the rejection of claims 1-10 and allowance of claims 1-10 and new claims 11-17 is respectfully requested.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned "**VERSION WITH MARKINGS TO SHOW CHANGES MADE.**"

If there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

Respectfully submitted,
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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS

Claims 1-7 and 10 are **AMENDED** as follows.

New claims 11-17 are **ADDED** as follows.

Recitation of all pending claims is provided for reference convenience.

1. (TWICE AMENDED) A component development management system comprising:
a storage unit [which stores a plurality of components related to] storing hardware and firmware [which are necessary for the] development, including manufacture[,] and inspection, data generated to constitute [of] a product, as a component development knowledge data base, wherein said hardware and said firmware development data constituting said product are at [the]a same management level;
a server which manages the component development knowledge data base stored in said storage unit; and
at least one client, connected to said server via a network, which takes out a predetermined component development data from said storage unit via said network.

2. (TWICE AMENDED) A component development management device comprising:
a storage unit [which stores a plurality of components related to] storing hardware and firmware [which are necessary for the] development, including manufacture[,] and inspection, data generated to constitute [of] a product, as a component development knowledge data base, wherein said hardware and said firmware development data constituting said product are at the same management level; and
a management unit [which manages] managing the component development knowledge data base [stored in said storage unit and which provides a control] by controlling when a client takes out [a predetermined] the hardware and firmware development data as component development data from said storage unit via a network.

3. (ONCE AMENDED) The component development management device according to claim 2, wherein said hardware and firmware development data as a plurality of [components] component development data constitute a hierarchical structure and said storage

unit stores meta-information expressing the hierarchical structure and said client takes out a desired component development data from said plurality of [components]component development data constituting the hierarchical structure based on the meta information.

4. (ONCE AMENDED) The component management device according to claim 2, wherein the meta-information comprises taking-out limiting information related to the permission/non-permission of taking-out for each component development data, and wherein said client takes out the applicable component development data based on the taking-out limiting information only when said client gets the permission.

5. (ONCE AMENDED) The component management device according to claim 2, wherein said component development data comprises patch information for automatically performing a patch processing to a firmware, and wherein said client performs the patch processing to the applicable firmware based on the patch information.

6. (ONCE AMENDED) The component management device according to claim 2, wherein said client retrieves a desired component development data [from among said plurality of components] based on the meta-information.

7. (ONCE AMENDED) The component management device according to claim 2, wherein said management unit sends a notice of revision to said client via said network when a component development data already stored in said storage unit is revised and sends a notice of new registration to said client via said network when a new component development data is registered in said storage unit, and wherein said client takes out said component development data at an arbitrary timing after said client receives the notice of revision or the notice of new registration.

8. (AS UNAMENDED) The component management device according to claim 2, wherein said management unit conducts communications related to the development consignment of said product with a development maker side client placed in an external development maker and connected thereto via said network.

9. (AS UNAMENDED) The component management device according to claim 2, wherein said management unit conducts communications for getting the permission of

quotation of a catalog of parts constituting said product with an author side client placed in the author side of the catalog and registers the catalog as a data base in said storage unit when it gets the permission.

10. (TWICE AMENDED) A computer-readable recording medium for recording a component development management program for making a computer execute:

storing [in a storage unit a plurality of components related to] hardware and firmware [which are necessary for the] development, including manufacture[,]and inspection, data generated to constitute [and the like of] a product, as a component development knowledge data base, wherein said hardware and said firmware development data constituting said product are at [the]a same management level; and

managing the component development knowledge data base [stored in said storage unit and providing a control]by controlling when a client takes out [a predetermined] the hardware and firmware development data as component development data from said storage unit via a network.

11. (NEW) A component development knowledge system, comprising:
a programmed computer processor generating, storing and managing meta information treating at same management level varyingly managed component development data generated to constitute a product.

12. (NEW) The component development management system of claim 1, wherein the component development knowledge database is Extensible Markup Language (XML) data.

13. (NEW) The component development management system of claim 1, wherein the hardware and firmware development data is stored according to a numbering system common to both the hardware and the firmware development data and added to each hardware and firmware development data.

14. (NEW) The component development management system of claim 13, wherein patch information of each firmware development data is included as a subclass in the numbering system.

15. (NEW) The component development management system of claim 12, wherein

the XML data comprises destination information of the hardware and firmware development data.

16. (NEW) The component development management system of claim 12, wherein the XML data comprises new and revised design notice information of the hardware and firmware development data.

17. (NEW) The component development management system of claim 11, wherein the meta information is stored and managed according to Extensible Markup Language (XML).